

METHOD AND APPARATUS FOR UV EXPOSURE FOR POROGEN REMOVAL AND FILM HARDENING

ABSTRACT

5 Methods and apparatus for preparing a porous low-k dielectric material on a substrate
are provided. The methods optionally involve the use of ultraviolet radiation to react with
and remove porogen from a porogen containing precursor film leaving a porous dielectric
matrix and further exposing the dielectric matrix to ultraviolet radiation to increase the
mechanical strength of the dielectric matrix. Some methods involve activating a gas to
10 create reactive gas species that can clean a reaction chamber. One disclosed apparatus
includes an array of multiple ultraviolet sources that can be controlled such that different
wavelengths of light can be used to irradiate a sample at a time.